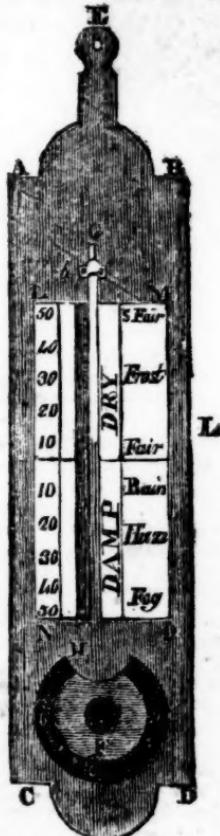


**AMERICAN  
MECHANICS' MAGAZINE,  
Museum, Register, Journal and Gazette.**

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However bad the world may be, the extremes of wickedness are to be found among those who do not read.—Knox.

**WEEKES' HYGROMETER.**



*From the London Mechanics' Register.*

WEEKES' HYGROMETER.

SIR.—Having noticed that 'Medicus,' in No. 9 of your Publication, desires to be informed of a correct Hygrometer; the following, which I have extracted from a periodical work, will be found to possess advantages over other more complicated instruments.—Mr. Weekes is the inventor.

"A, B, C, D, fig 1, represents a plain, smooth and polished piece of box-wood, about a foot in length, and half an inch in thickness, with a perforated brass plate, E, affixed behind, for the convenience of suspending the instrument; F is a hollow brass cup, for the reception of a, fig. 2: similar to those employed in common self registering thermometers, and which secure the part *a* from external derangement. The atmospheric air must be permitted to have free access into this brass cup, at its upper part, around the lower extremity of the glass tube G, H. I, K, fig. 2 a glass tube of small bore (equal to those used for the small mercurial thermometer) open at both extremities, and the upper end I, bent about half an inch, at right angles with the long limb of the tube. The short part, I, fits into a hole at G, fig 1, by which it is suspended, and its membranous appendage, *a*, concealed by the brass cup before mentioned. *b* fig. 1, is a small brass hold fast, for the more perfect security of the tube, firmly screwed on to the box wood frame. The scale L, M, N, O, requires but little description, it being simple and its object obvious.

*a*, fig 2, is the air bladder of the common roach of our pools and rivers. One of those bladders should be chosen which will contain from two or three drachms of pure mercury, and leave sufficient space above it to admit the tube I, K. When the membrane has been sufficiently dried, by exposure to the atmosphere of an ordinary room for the space of three or four days, pour in the mercury, and insert the tube above it, so that it

comes quite in contact with the surface of the metal, or even dips a little into it. Now, take a strong fine waxed twine, and contract the capacity of the 'ladder,' by winding the twine strongly around the lower end of the tube, until the mercury rises midway therein.

Fix the tube in its proper situation; and expose the instrument, in this unfinished state, to a dense fog, or to the densest atmosphere that occurs: or what will succeed equally well, and save time waiting such an opportunity; fasten by a cord, and suspend in a damp well for the space of twelve hours. Either of these methods will have the effect of dilating the bladder to its greatest expensible capacity, and the mercury will have sunk very considerably in the tube. In an exact line with the surface of the metal, mark the verge of the scale N, O, which will represent extreme damp.

Next let the instrument be placed in a secure position, within three or four feet of a moderate fire, until the mercury from attentive observation, is found to rise no higher; and observing the same mode as before, draw the line L, M, parallel to N, O, which will give the point of extreme dry. A third line drawn midway between the two, is the zero of the hygrometer. The scale on the left hand, may be divided or subdivided at pleasure. Mine is graduated to 50 both above and below zero. The righthand side of the scale may be made to indicate the modifications of drought and dampness as accurate and long continued observation may enable the meteorologist to decide. I have given mere examples in the accompanying sketch. If from long use or casual injury the fish membrane decreases in its capacity to contract or dilate (though this, I believe, will rarely if ever occur, excepting after a series of years, when it might be replaced by a new one), exposure, for a short time, to nitrous oxide gas will speedily restore it to its pristine susceptibility.

To give the scale such a basis as may establish a relation between all hygrometers that are constructed up-

on the same principle, Mr. Weekes we see has assumed two fixed points, extreme humidity and extreme dryness. I think the latter will be better determined in the following manner than by his process. Take a hot and well dried receiver, place under it quick lime, just calcined, it being of that temperature that it may be placed under the receiver without inconvenience. When the temperature of the inside of the receiver is lowered to about 110 degrees, place the hygrometer under it. The choice of lime is founded on this, that the calcination of it having produced a higher degree of dryness, if it be afterwards left to cool, so far that it may be placed without inconvenience under the glass bell destined for the experiment, it will still be found, as to sense, in the same state of dryness, since it is very slow in acquiring humidity; and thus all its absorbent power will be employed to dry up, by little and little, the air contained under the receiver, and to make the hygrometer itself pass into a state which approaches the nearest possible to extreme dryness.

It appears to me that this hygrometer cannot be quite correct, as heat will always expand the mercury in summer, and cold contract it in winter. Thus, if it be supposed, for example, that the air is heated about the hygrometer—this air, whose dissolving power, with regard to the water, will be augmented, will take away from the air bladder a portion of the water which it had imbibed, thus tending to contract it, while the heat, by penetrating the quicksilver, will make it expand. And hence the total effect will be increased in hot weather, and decreased in cold.

In observations therefore which require a certain precision, it is necessary to consult the thermometer at the same time with the hygrometer.

Your humble servant, Tino.

#### *From the Dictionary of Architecture.*

##### ABELE TREE.

A species of white poplar bearing a larger leaf, a finer grain, and being

a quicker grower than the *wild Abele tree* or common white poplar. The leaves are divided into three, four, or five lobes of a very dark colour on their upper side, and white and downy on their under. The young branches have a purple bark covered with a white down, but the bark of the stem and older branches is gray.

"In moist and boggy places," says Evelyn, "they will flourish wonderfully, so the ground be not spewing, but especially near the margins and banks of rivers, and in low, sweet, and fertile grounds."

The best sort of Abele-trees having been originally procured from Holland, it is in some places known by the name of *dutch beech* and it is recorded that about A. D. 1659, ten thousand Abeles were imported from Flanders and transplanted into many counties.

They are remarkable for the quickness of their growth, and the Dutch, with whom the Abele is a favourite, consider a plantation of those trees, made at the birth of a daughter, to be an ample provision for a marriage portion. In England, some Abeles, planted twenty five years, measured six feet in circumference; and another instance is given of a tree twelve years old girding four feet, and increasing from three to four inches each year in circumference. An Abele tree is mentioned by Evelyn, as growing at Sion, near Brentford which was lopped in February, that in the month of October, in the subsequent year, produced branches as big as a man's wrist. Its height varies from about forty five to one hundred and twenty feet. The colour of the wood is white with a tinge of umber or brown, and from a slight discolouration of the outer edge of the annual rings their increase is easily noted. The wood is of a very uniform texture.

If we reckon the stiffness of oak to 100, the stiffness of Abele may be taken at a tenth less. It is nearly 15-100 tougher than oak, but it has not more than 7-10ths of its stiffness. A cubic foot when dry weighs about 32½ pounds avoirdupois; and the me-

dium cohesive force of a square inch is 5711 pounds avoirdupois.

It is less combustible than many other woods, burning "untowardly, and rather moulders away than maintains any solid heat." On this account it is not well adapted for fuel.

The Abele is enumerated by Vitruvius (B. xi.) among woods used for building: and as being in many situations serviceable from its toughness, and also from its colour and lightness to be proper for carving.

Evelyn mentions its being an "incomparable wood for butchers' trays, and for all kinds of turnery and toy-work, and for the carver." From the lightness of the wood saving much of the expense of the carriage, it is well adapted for packing cases, and much used for this purpose by foreign merchants. As also for its not being liable to split in nailing. It is a favourite with bellows makers, and the inhabitants of a district in Holland, which is noted for its production, make shoes of this wood, of which they export immense quantities, besides supplying exclusively the province of Holland. For all sorts of wooden domestic vessels it is much esteemed, and in particular situations for ships' pumps. It is used for carts, as well probably from a property which it possesses in a remarkable degree, of giving way to the nail, and closing upon it afterwards; as for its lightness and toughness. The wood of the Abele has been long recommended by old women for "making shelves of cheese rooms, and for farm houses in general, as neither mice nor mites will attack it." The recommendation has been repeated by a recent compiler, without any qualification.

The durability of the Abele when used in building, depends entirely on its situation, with regard to dryness or moisture. In contact with moisture it quickly rots and decays; but under cover and in a dry and well aired situation, its durability is equal to pine timber.

Besides its not being liable to shrink, it has been strongly recommended for floors and wainscoting, on ac-

count of its lesser inflammability; but its softness is an objection to its use in flooring. "Lord Sheffield," says Pontey, "has lately made some floors, which, in appearance, are superior to any thing he had seen, whether of deal or oak, and he sees no reason to doubt its durability. Floors, however, he considers as one only of the many inferior purposes for which it is applicable, as it is certainly proper for almost every article of furniture usually made of mahogany. For the lighter descriptions of this wood now so fashionable (and high priced) it might be made a very good substitute without any other addition to the natural colour of its heart than the means cabinet-makers generally resort to in order to heighten the colour of such wood. And with respect to the sap, and where more of colour is required, the aquafortis stain will instantly produce it, so far as that it would be difficult to distinguish it from real mahogany. He thinks it equal to the best in colour and smoothness of surface, and much superior to the plain or inferior sorts in these respects, as well in transparency as variety; and it has the farther advantage over mahogany and most other woods, that it takes but little of either oil or rubbing to produce upon it a sort of mellow shining surface, so much admired in furniture, that has been some years subjected to proper attention."

In landscape gardening, the Abele is employed to screen unseemly or unimportant buildings, or walls, for which it is well adapted, from the denseness of its foliage. Its shade is reckoned wholesome, and its "umbra hospitalis" is celebrated. In modern practice the Abele is placed at a distance from walks or dressed lawns, as its suckers, and the litter which its leaves produce in autumn, are detrimental to that verdure and neatness of the turf which are essential in those situations.

#### BALANCE-CRANE, OR APPARATUS FOR LIFTING HEAVY GOODS.

We copy the following account of

a most ingenious, though simple Apparatus for lifting heavy Goods from the Ground into Carts or Wagons, invented by Mr. J. W. Boswell (the celebrated improver of the Schemnitz engine for raising water,) from No. 1 of the Report of Patent inventions, a new and greatly improved series of the old Repertory of Arts and Manufactures.

" It has often appeared to me, that society would be much benefitted by communications published relative to useful matters which may have occurred to individuals in their several pursuits or employments, and which, from various circumstances, they may not be able to render lucrative to themselves by the exclusive right of a patent, or other means, though valuable for their applications to purposes of acknowledged utility.

Influenced by this opinion, I have communicated several papers, which appeared to me to contain matters of this description, for publication at various times, and should have transmitted others, but have been prevented partly from the pressure of my business, and partly from considerations with which it is not material to trouble your readers.

" Some of these I have had the satisfaction to see adopted by gentlemen who had more opportunity to turn them to practical utility than I had. One gentleman, who made use of my improvements on the Schemnitz engine for raising water, has had the liberality to acknowledge his having taken his ideas from my paper relating to it in Nicholson's Philosophical Journal, in what he published respecting this matter: and another gentleman has done me the honour to take out a patent lately for my method of moving ships by compressed air, which was published in the number of the Repertory of Arts for April, 1815, which, however, I presume, cannot be of much use to him, as, by this publication, I have not only established the priority of my claim to the

invention, but, of course, have rendered his patent null and void.

" These two instances will, I hope, give some proof of what I have asserted relative to the value of such publications, and excuse me for again taking up some more of your pages with similar communications.

" Having had occasion, some time back, to send off several large cast-iron vessels, some of which weighed considerably more than a ton weight, and not being provided with a crane to lift them into a cart, I had to contrive some method for the purpose, less expensive, troublesome, and dangerous, than the united efforts of a number of men.

" I had some deal spars, a few planks, and some strong cord that had served for binding pearlash casks, but nothing else that could be at all applied to the use desired; with these however, I made shift to construct an extemporary apparatus, which I found extremely convenient for my design, very simple, easily put together, and of no cost, and which, as others may find it, or one of a similar kind, equally serviceable, I will describe at large.

" With three spars I erected what is commonly (though improperly) called a triangle, united together by cords at top, and diverging sufficiently at bottom to make it steady; to the top of this I fastened, by several rounds of rope, a strong beech plank by the middle, placing it edgeways, (or with its plane vertical to that of the horizon,) which plank was near 14 feet long, 10 inches broad, and about  $2\frac{1}{2}$  inches thick; to one end of this plank I fastened a large scale used for weighing, and secured it well by triple cords at each angle. I then brought down the other end of the plank sufficiently low to raise the scale above the level of the cart, and in this position had it bound firmly by several rounds of cord to the vessel which I desired to raise: I then had the scale loaded with heavy matters (weights, pieces of iron, and bricks,) till it balanced the vessel, after which it was easily raised and placed in the

cart, by backing the horse till it came under it, in the proper position; and then, by taking the weights out of the scale again, the apparatus was readily disengaged.

"I found this simple apparatus so convenient for loading carts, that I used it several times afterwards for lifting casks of Epsom salts, and other matters, under two hundred weight; which leads me to suppose, that one on the same principle would be found very useful for raising any weight greater than what one man could lift with facility, and that it would be advantageous to have one erected permanently for the use of any business where heavy weights are required to be raised from the ground into carts or wagons.

"As this apparatus serves most of the purposes of a crane, if it should ever come so far into use as to require a name, I would propose to call it the "Balance Crane."

*From the Lond. Mechanics' Magazine*

**FLEXIBLE MARBLE.**

"As hard as marble," is a common simile; and yet flexible marbles may be had in abundance. The most remarkable of this sort are those at West Stockbridge, Lanesborough, and New Ashford, in the United States. The flexibility and elasticity of this stone may be shown as it stands upon one end, by applying a moderate force to the middle or the other end. Its flexibility is seen, too, by supporting the ends of it in a horizontal position upon blocks. The marble has various colours, nearly white, with a reddish tinge, gray, and dove coloured. Some of it has a fine grain; other specimens are coarsely granular, and have a loose texture. It is not uncommon for one side of a large block to be flexible, while the other part is destitute of this property. It takes a good polish, and appears to be carbonate of lime, and not a magnesian carbonate. It is well known that Dolomieu attributed the flexibility of the marble he examined to exsiccation, and that Bellevue ascertained that unelastic marble might be made

elastic by exsiccation. The flexible marble of the United States, however, loses this property in part on becoming dry. When it is made thoroughly wet by the operation of sawing, or of polishing, it must be handled with great care, to prevent its breaking; and the large slabs of it cannot be raised with safety, unless supported in the middle as well as at the ends.

*From the Kaleidoscope.*

**HYDROPHOBIA.**

SIR.—On searching amongst some loose papers which I had by me accidentally, or, perhaps, with more propriety, providentially, I found the following recipe for the cure of that dreadful disease, hydrophobia. When and where I copied it I do not remember; but I rather imagine it was in that admirable school of wisdom, the College, in Manchester. With respect to the internal application of the strong acid alluded to in the recipe, medical gentlemen, from their knowledge and experience, are the best able to judge how much it may be necessary to neutralize or reduce its strength with alkali (crystals of soda or pearlashes &c.) so that it may fully answer the desired end, without injuring the bowels.—yours, &c.

SAMUEL TOPP.

"This remedy consists of hydrochloric (liquid oxygenated muriatic acid) used internally as well as externally: the wounds caused by the bite of mad animals are to be washed with it. This substance will destroy the hydrophobic poison, even when used several days after the fatal bite. Numerous cures, incontestable and authentic, which have been effected by this extremely simple method in the great hospitals in Lombardy, leave no doubt as to the power of this specific.

*From the Lon. Mechanics' Magazine,  
LESSENING THE DRIFT OF SHIPS AT SEA.*

A Mr. Burnet of London, has taken out a patent for this purpose. It consists in letting down to the windward a square plane, attached to a floating

plank, with chains eleven feet long from the angles at one side to those at the opposite side, connected in the middle by a loose ring, to which a hawser is to be fastened from the ship; a cord also passes to the ship from each end of the plank to direct the position in which this is to lie with respect to it. The square plane being directed by the cords to lie at right angles to the drift of the ship, and not being moved by the wind from lying very low in the water, will, of course in being drawn forward by the hawser, make a resistance to the motion of the ship to the leeward, proportional to its hold in the water, which will be equal to its surface multiplied by the square of the velocity of its movement.

The square plane consists of a frame of bar iron, bolted to the plank, with strong canvass, turned over and sewed to the upper bar of the frame, and lanced by cords passing through holes in it, to the bottom bar and to those at the sides. The plank is a little more than three times the length of the frame, and is formed of three pieces, united by hinges at each side of the frame, with bolts over the hinges, so arranged that when the two outside pieces are opened up so as to be in a line with the middle piece, the bolts, being protruded, will keep them in that position; and when they are drawn back, will admit those pieces to be brought down by the sides of the frame, in order that the whole may take up less room in stowage, when not required for use.

The chains connected by the ring in the middle, and drawn by the hawser will pull the whole forward equally, without permitting one part of the frame to be acted on more than another by the resistance of the water. The dimensions of the frame are not mentioned, but from the length of the chains being eleven feet, it is supposed it could not be more than about seven feet long at each side.

This plan was first proposed by Dr. Franklin, who took the idea of it from a school boy's kite, and had an

apparatus for the purpose fitted up in the same manner, and very like one, an account of which may be seen in the Transactions of the American Philosophical Society.

*From the New England Farmer.  
THE POTATO.*

SIR.—You probably remember seeing, about a year since, in the Boston *Centinel*, the description of a potato raised in this place, weighing more than three pounds.

That was committed to my care for experiment. About the middle of May it was planted in a soil consisting mostly of vegetable mould or loam; apparently no lime, and scarcely any silex. A small portion of lime and sand, mingled with horse dung, were thrown over it.

At the same time, to try the principle of cutting for the purpose of extensive propagation, I weighed the amount of the large potato, in common sized ones; and cutting them into as many pieces as were eyes, planted them immediately beside the undissected potato, two hills, and gave them the same treatment.

The season being very unfavourable to the production of the potato, owing to the severe and protracted drought, they were watered daily.—This probably retarded and stunted their growth.

The experiment is not perfectly satisfactory. The result, however, I will communicate:

The large undivided potato produced in number, seventy six, and in weight, twelve and three quarter lbs. The cut potatoes produced in number, one hundred fifty one, in weight twelve and a half lbs. These were dug soon, as the vines were perfectly dead.

In the eastern part of Maine I made a similar experiment. I planted the same weight of whole and cut potatoes, in rows alternately: and found no perceptible difference in the produce. I have found sea weed, covered with sea sand placed over the potatoes, the cheapest and most productive manure, on the sea board. Oak leaves would probably be a good sub-

stitute for sea weed in the interior, otherwise the time has arrived for digging.

The observations of 'Horticulturist' on the imaginary new disease of potatoes, are very just. By a long continued, or severe drought, the vines and fibrous parts of the root are killed and detached from the tuberous portion. This latter, thus situated, is completely prepared for germinating. To produce this effect, however, a great degree of moisture, one drenching shower at least, combined with considerable warmth is requisite.—Cold wet weather, or moderately moist and warm, is ineffectual. This accounts for the imagined phenomenon not having been more frequently observed.

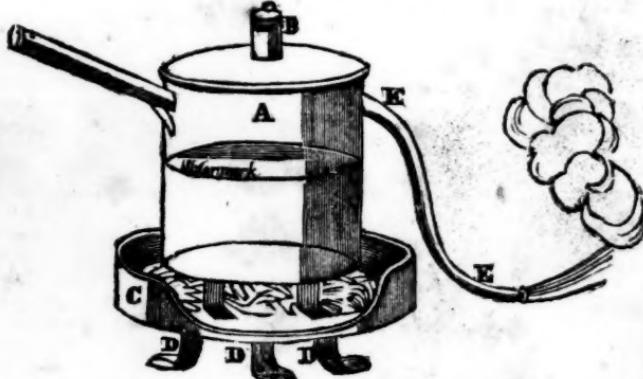
Small potatoes very frequently continue to grow, after the vines are dead. This death has then occurred from a severe frost, and not dry weather.—We may ascertain this by pulling up the veins; if they bring up potatoes and degeneracy by returning to the south, the roots are unaffected, south?

and you may gain growth by delay;

Very respectfully, W. BALLARD.

*From the London Mechanic's Magazine.*

#### BUG DESTROYER.



Sir,—If you think the above drawing of a Machine for destroying that obnoxious reptile, the Bug, and ridding houses of it in a clean and efficacious manner, it is very much at your service for the benefit of all who are

troubled with this domestic affliction. I have destroyed and cleansed my beadsteads and house of these disagreeable inmates in the course of an hour and a half, without making any slops or soiling the least thing.

think it would be well if inkeepers, &c. would have a machine of this sort always in their house.

I am, Sir, yours, &c.  
G. BROWN.

#### Description.

**A** is a common tin saucepan, with the lid soldered down, to keep the steam in.

**B**, a tin pipe, in which a cock is put after the boiling water is put in.

**C**, a tin chafing dish, fastened to the side of the saucepan to keep it above, so as to admit charcoal to be put under and lighted up, to keep the water boiling.

**D**, the legs on which the whole stands.

**E**, a small tin pipe through which the steam flies, with great force, into the joints of the bedstead, under the sacking, skirting-boards in the room or holes in the wall, burning up eggs bugs, or any thing coming in its way. It can be carried by the handle, and the spout placed any where that bugs are supposed to harbor.

I assure you, Sir, though this simple contrivance may be laughed at, it is, nevertheless, as useful a piece of furniture as any in a house where these noxious vermin are troublesome.

From the London Mech. Magazine.

#### BIRDS MISTAKEN FOR METEORS.

An account recently published by Professor Hanstein, of a shooting star seen in the day time, has excited a good deal of speculation among astronomers. Mr. Dick, a writer in the Quarterly Journal, has now shown, however, pretty clearly, that it could be nothing else than a bird. Whilst making observations, twelve years ago, on Venus when close to the sun, he, whilst looking for the planet, remarked a body passing across the field of the telescope, apparently of the size of Venus, but varying a little in this respect; at first it was mistaken for the planet, but its rapid motion corrected the error. In some instances four or five of these bodies appear-

ed to cross the field of view, sometimes in a perpendicular, and at other times in a horizontal direction. They appeared to be luminous bodies, somewhat resembling the appearance of a planet, when viewed in the day time with a telescope of a moderate power. Their motion was rapid, and inclined to a waving or serpentine form. Observing some of these bodies which were larger than others, he was able to decide they were birds, whose bodies, illuminated by the solar rays, reflected light enough to produce the appearance. In a hot summer's day, when a similar phenomenon has been observed, there was every reason to attribute it to a number of winged insects flying at no great distance from the telescope. Mr. Dick observes, that Professor Hanstein's account of the kind of motion as being unequal, and resembling that of a rocket, corresponds to the motion of birds through the air. He remarks, too, that an appearance observed by the late Mr. B. Martin, of certain bright round bodies running towards the sun, when viewed in particular circumstances, may be explained in the same manner.

From the London Farmer's Journal

#### PAINT MADE WITH POTATOES.

Take one pound of potatoes skinned and well baked; bruise them in three or four pounds of boiling water, and then pass them through a hair sieve; to this add two pounds of good chalk in fine powder, previously mixed up with four pounds of water, and stir the whole together. This mixture will form a sort of glue, capable of receiving any kind of colour, even that of powdered charcoal, brick or soot, which may be used for painting gates, palings, or other articles exposed to the open air.

From the London Mech. Magazine.

#### ETRUSCAN VASES.

Professor Hausman having instituted an inquiry into the composition of these vases, has come to the following conclusions:—1. That the

manufacture of earthen vases, appropriated to funeral occasions, had been widely propagated at a remote period of antiquity, with little deviation from a general plan, in so far as regards their principal circumstances. 2. That these vases have been formed with much particular diversity in regard to less important circumstances, such as the quality of the clay employed, and differences in the forms, ornaments, and paintings; not only in different countries and at different times, but also in the same countries and at the same period. 3. That the finer sort of these vases are superior in regard to the preparation of the clay, and the elegance and variety of forms, as well as the care of the paintings, to all others of the kind, whether of Roman or of modern manufacture, insomuch that the pottery of the most remote ages forms the model of that of the present times. 4. That the art of manufacturing these vases, as practised in very remote times, is much more worthy of estimation than our best performances in that way, since the ancients were not in possession of many assistances which are applied to the art by us; and because some things which are now done without difficulty, by means of certain instruments of machinery, were, in those times, perfected by means of the hand alone, by the greater dexterity of the artists. 5. That certain circumstances were peculiar to the very ancient arts of making and ornamenting those earthen vessels which have evidently been lost in later times, of which may be mentioned in particular the composition of a very thin varnish, which gave a heightening to the colour of the clay in a greater or less degree, and afforded a very thin firm black coating, retained its lustre to the most remote ages, and capable of resisting the action of acids and other fluids; so that the modern art of manufacturing pottery ware may be materially improved, not only with regard to the forms and ornaments, but also the preparation and application of the materials, by a diligent and continued examination of those very ancient vases.

*From the London Farmer's Journal,*

#### WASH LEATHER WAISTCOATS.

In several instances, the best effects have occurred from wearing wash leather over flannel, as a preservative against the consequences of those exposures to which all are more or less liable. A waistcoat of this material will, in many cases, supersede the necessity of, and prove a more effectual barrier against cold than a great coat; and often even after the establishment of a rheumatism which refuses to give way to the most powerful medicine, clothing the parts with leather will almost immediately effect an easy cure.

*From the London Mech. Magazine.*

#### NEW SILK LOOM.

A loom has recently been made at Lyons for silk weaving, which has many advantages. It is composed of five stages, and the mechanism, which is simple, allows one man to weave five pieces at the same time. The loom has been examined by the commissioners from the Academy of Lyons, in company with Mons. Jacquart, the inventor of that sort now in use, and which was imported into England with great haste, tending to prove its great advantages. M. Jacquart is of opinion that the new invention is of great importance, and he has pointed out some improvements in it. The inventor is M. Leburn, and the academy intends to confer a medal on him.

By this loom a saving will be made of four fifths in the expense of labour.

*From the London Mechanics' Magazine.*

#### CORKED BOTTLES SUNK IN THE OCEAN.

About two years ago, on the homeward voyage from the East Indies, some friends of mine agreed to make some experiments, at my suggestion. One or two bottles were procured and being corked with as sound a cork as could be got, and well sealed, were let down about seventy or eighty fath-

**SMS.** On being drawn up, after about ten minutes, the cork of one appeared to be forced into the bottle, which was filled with water in a state of effervescence or boiling; the others where broken, but by what means we could not of course tell. The day, however being remarkably fine, not a breath of air stirring, and of course, highly favourable for such experiments, the following was tried:—From a great many bottles, one was selected, the mouth of which appeared to be as round and smooth as possible, into which was put a ground glass stopper, also selected from many, which fitted it as exactly as possible, and which, from its make, could not be forced in. This stopper was farther secured by a strong cord passed over it, to prevent its getting loose, thereby letting water in. Some common wax (candle) was then smeared round it, and over it four pieces of good bladder were tied. This was subsequently immersed in melting sealing wax, so as completely to cover the bladder.

The bottle, thus prepared, was fastened, with the neck upwards, to a line (with three deep sea leads attached to it, to make it sink as fast and as perpendicularly as possible from the ship,) in a sort of net-work made on purpose, with the meshes rather open, but still sufficiently close to prevent losing any of the pieces, should the bottle be broken. It was then put overboard, and 200 fathoms of line let out; but allowing a little for the drift of the ship, the bottle could not, I should think, at any time, have been more than about 150 or 160 fathoms from the surface.

In five minutes from the time the last fathom was let out, we commenced hauling in, and the result was very different from any I had ever seen or heard of.

We found that the bottom of the bottle had burst in, and with such force as to break two or three pieces out of the shoulder (if I may call it so.) The neck was not broken off altogether, but merely two or three pieces out, and cracked all round, but kept in its place by the net work. The bottom was evidently forced in,

from the appearance of the fracture round the edge (which I always thought was the strongest part of the bottle,) and also from our not being able to get the bottom out until the neck was broken off. From the neck to the bottom the bottle was perfectly sound, without even a crack.

I do not know that I have made myself sufficiently understood; but if not, I shall be happy to explain, as well as I am able, at any future time. In the accounts I have read of such experiments, the length of line let out has seldom exceeded 60 fathoms; I shall be glad therefore, if "A Constant Reader" will favour your numerous other readers with his explanation of the cause of such a different effect, at so much greater distance.

I am, Sir,  
Your sincere well-wisher. H. S. H.

#### BALLOON.

M. Schrieggir of Paris, proposes to build, in an economical manner, a grand balloon, from a composition of gum elartique and oil varnish, to which the extremely light steam machine of Ruchenbach, combined with Perkins' powerful steam engine, might be so attached as to vanquish the force of the winds.

#### WARM BATHING.

SIR,—Should Warm Baths be established contiguous to any of the great gas works, upon the principle recommended by Mr. Bell, in your valuable publication, I would beg leave to inquire of your medical readers how far it may be made to imitate, in efficacy the saline springs, or sea water, as a bath, by the addition of common salt (muriate of soda;) and if so what proportion of salt should be added to the water for that purpose. I would also wish to inquire, if it could be improved by the addition of any other substance? It would also be desirable to be informed, to what degree of temperature the bath should be heated for general use.

There appear some obstacles in the way to the general adoption of warm

baths upon Mr. Bell's principle, which may prevent their becoming "*co-extensive* with gas illumination," as he rather sanguinely expresses it. To mention one of these, is it likely to obtain, in every situation where gas-works are established, a sufficient supply of water, of that degree of purity which is necessary for the purpose of filling the baths? Still however, I thank him for the hint, and hope the Mechanics' Magazine will be the means of informing that important part of the community (the labouring classes) how they may derive that advantage from tepid bathing at home, and at an expense within their means, which has hitherto been enjoyed, at established watering-places, almost exclusively by the fashionable and opulent. Your humble servant,

B—,

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GOVERNOR CLINTON'S MESSAGE.

We have read with much satisfaction the message of Governor Clinton. It is a valuable, plain and interesting document, showing the progress of science, literature and internal improvement in the different quarters of the state—growing in prosperity, and increasing in population, in vast resources and extensive commerce, yielding to none in public spirit—Patronising every thing intended to advance the public good. 80 thousand 670 dollars was appropriated last year for the education of children, at which time more than 420,000 were taught at our common schools. "In two years the elements of instruction may be acquired, and the remaining eight years must either be spent in repetition or idleness, unless the teacher of common schools are competent to instruct the higher branches of knowledge. The outlines of Geography, Algebra, Mineralogy, Agriculture, Chemistry, Mechanical Philosophy, speaking of the great western canal,

Geometry, Astronomy, Political Economy, and Ethics, might be communicated in that period of time, by ample preceptors, without essential interference with the calls of domestic industry."

Our canals are finishing, and new ones are about being planned. Within a few years 428 miles of inland navigation has been completed to the great outlet of the state, the Hudson river, thus throwing open a commerce to the Atlantic from a vast inland coast extending nearly 3000 miles : equalling our whole sea board from Maine to Georgia; a coast that will perhaps in a century be covered with bustling towns and villages nearly as populous as those that now surround us; possessing every advantage of soil and climate: distant and secure from the invasion of any foreign enemy, and continually receiving emigrants from all parts of the United States, as well as from Europe—encouraging agriculture and manufactures—A cornucopia already overflowing, having now the means of transporting their produce to a sure and profitable market, we see no bar to their increasing strength, happiness and prosperity. The canals of Ohio will, in addition, open the whole commerce of the valley of the Mississippi, and thence to New Orleans. The Delaware and Hudson Canal, 114 miles in extent, 65 of which will shortly be completed, will give us the means of transporting any quantity of coal for the use of our growing city. The Delaware and Raritan canal will facilitate the commerce between New-York and Philadelphia.

that this work will, in a few years, pay for itself; or, in other words, that the income will defray the expense of erection. The auction and salt duties, and the proceeds of sales of land, together with the excess of income of tolls beyond the interest of the debt, will certainly exceed 400,000 dollars this year, which may be applied to the payment of part of the loans."

The attention of the legislature is again called to the improvement of the navigation of the Hudson river near Albany, and we think it high time some able and persevering engineer should be employed, when we have no doubt that this eye sore of the capital would be removed, and the river would be no longer crowded with vessels aground within sight of their port of destination.

The great road from Lake Erie to the Hudson river will be of immense advantage and "incalculable benefit to a very considerable portion of our population which cannot, from its remote and sequestered position, participate in the advantages of our artificial navigation." It is also contemplated to construct another great road from Sandy Hill or Fort Edward, to terminate also on the Hudson river.

The attention of agriculturists is called to the cultivation of hemp and flax, as among the most important of our agricultural productions, and also to the raising of sheep, and protecting them from wolves and dogs. Wool has got to be an article of great demand, which will continue to increase; our manufacturers now consume a much larger quantity than is raised in our country, and as long as this is the case, we shall have to depend on foreign importations to supply the de-

mand notwithstanding the duty laid on all imported wool.

Having noticed the improvements recommended by the inspectors of our state prison, the Governor informs us that "the new prison erecting at Sing Sing, in West Chester County, was commenced in May last, and will probably be finished in the autumn of 1827. The materials for the purpose, except iron, are found on the spot. No wood is used in the construction, and it will be entirely incombustible. The ground, about 130 acres, has cost 20,000 dollars. A great part of the work is done by convicts, who are secured in the night time in 60 cells already provided. The principal material is excellent marble."

After the honours shown to the generous La Fayette, the respect to the brave Commodore M'Donough, it remains to show our gratitude to that great machinist, Robert Fulton, who, "after having perfected the most useful invention of the age, departed this life, leaving nothing to his children but his illustrious name, and his interest in a grant of this state. Deprived of the benefit of that grant, they are now thrown almost destitute on the world. Justice, equity, magnanimity and benevolence, speak loudly in their favour, and it is in your power, by a recognition of the services and claims of that benefactor of the world, to rescue, so far as you are concerned, republican governments from a standing reproach."

Fulton, though perhaps not the first inventor of steam boats, was certainly the first man through whose talents that power was applied to steam navigation with any advantage—but for him we might yet on our voyages be

whistling for the winds or praying for the tides. We hope our legislature will no longer remain unmindful of the great service he has rendered to the state. To the importance of his invention we can set no bounds.—

Steam boats are rapidly taking the place of all other vessels, not only in regard to the conveyance of travellers, but likewise to that of freight of every description; and from the preparations now going forward in England, they will shortly cover the ocean, and we are inclined to believe, from the many improvements that are daily appearing, that they will be found as free from danger as any other vessels, whatever.

#### INFLUENCE OF COPPER ON MAGNETIC NEEDLES.

M. Arago lately communicated to the Academy of Sciences some interesting experiments relative to the oscillations of a magnetic needle, surrounded by different substances. He had ascertained that the copper rings, with which dipping needles are generally surrounded, exerted on the needles a very singular action, the effect of which was rapidly to diminish the amplitude of the oscillations without sensibly altering their duration; thus, when a horizontal needle, suspended in a ring of wood by a thread, without tension, was moved 45dg. from its natural position, and left to itself, it made 145 oscillations before the amplitude was reduced to 10dg. In a ring of copper the amplitude diminished so rapidly that the same needle moved 45dg. from its natural position, and only oscillated 33 times before the arc was reduced to 10dg. In another ring of copper, of less weight the number of oscillations between the arcs of 45dg. and 10dg were 66. The time of the oscillations appeared to be the same in all the rings.

In the ring of wood, 145 oscillations 45dg. to 10dg

In the ring of copper, 33 oscillations, 45dg. to 10dg.

In a lighter ring, 66 oscillations, 45dg. to 10.

#### COVERING FOR FLAT ROOFS.

A cheap and permanent covering for a flat roof may be formed in the following manner:—Let the roof be covered with boards of any convenient thickness, slightly inclining towards one corner, for the better letting off water; then spread on, while warm, a composition of pitch with a little tar in it, carefully melted: over that lay (eleven) sheets of strong brown, or what is commonly called rope paper; then another layer of the composition, and again the paper, and so on alternately as often as may be deemed necessary, taking care to have a layer of the composition last, over which a small quantity of very fine gravel or sand should be sifted; the whole should then be kept covered (say an inch or so thick) with gravel. A piece of sheet lead may be fastened to the lower corner, and formed into a spout for carrying off the water.

#### NEW PATENTS.

The following Patents have lately been granted in England

To Adam Eve, of South, in the county of Lincoln, carpet-manufacturer; in consequence of a communication made to him by William Augustus Prince, a foreigner residing abroad, for certain improvements in manufacturing carpets, which he intends to denominate Prince's Patent Union Carpet.

To Isaiah Lukens, late of Philadelphia, but now of Adam-street, Adelphi, in the county of Middlesex, machinist; for his new invented surgical instrument, for destroying the stone in the bladder without cutting, which he denominates Lithotripter. 15th September.

**VARIETY.***From Various Papers.*

Perhaps the following copy of a sign may not be uninteresting to some of our readers. It is over a public house door in the neighbourhood of Blackpool :

**Rich. Harrison Dealer in Ale and Tobacco.** you Tippling blades that here pass by step in drink for praps your Dry. For Richard Harrison he does live here, and seals at pot of Olesom Beer.

A house spider was placed by a gentleman on a small platform, in the middle of a glass full of water, the platform being about half an inch above the surface. It presently made its escape, as might have been anticipated, by suffering a thread to be wafed to the edge of the glass. The person who witnessed this, suspecting it might have been assisted by the water, being so nearly on the same level, poured some of the water away and placed the spider as before. It descended by the stick that supported the platform, till it reached the water, but, finding no way to escape, it returned to the platform, and, for some time employed itself in preparing a web, with which it loosely enveloped the abdomen, by means of the hinder legs. It now descended, without hesitation, to the bottom of the water when the whole of the abdomen was covered with a web, containing a bubble of air, probably intended for respiration, as it evidently included the spiracles. The spider, enveloped in this little diving-bell, endeavoured on every side to make its escape, but in vain, on account of the slipperiness of the glass; and, after remaining at the bottom for about thirteen minutes it returned, apparently much exhausted, as it coiled itself close under the little platform, and remained afterwards without motion.

Mon. D. burying his wife five hours after her decease, they told him the body was not yet cold. "Non-

sense," said he, "do what I tell you, —she's dead enough."

"It is a curious fact, though not generally known," says the London paper, "that the popular superstition of overturning the salt at table being unlucky, arises from the picture of the Last Supper, by Leonardo de Vinci, in which Judas Iscariot is represented overturning the salt." Now it happens that the Romans, fifteen hundred years before this said Leonardo de Vinci was born, entertained the same superstitious notions respecting salt. The following corroboration of the fact is copied from D'Amay on the manners of the Romans :— "The Romans looked upon salt as a sacred thing, and placed little images upon the table near it and esteemed it a bad omen if the salt was either forgotten or spilt."

The following extraordinary anecdote of the sensibility of cats to approaching danger from earthquakes is well authenticated. In the year 1783, two cats, belonging to a merchant of Messina, in Sicily, announced to him the approach of an earthquake. Before the first shock was felt, these two animals seemed anxiously attempting to work their way through the door of the room in which they were. The master observing their fruitless efforts opened the door for them. At a second and third door which they likewise found shut, they repeated their efforts, and on being set completely at liberty they ran straight through the street and out of the gate of the town. The merchant, whose curiosity was excited by this strange conduct of the cats, followed them into the fields, where he again saw them scratching and burrowing in the earth. Soon after there was a violent shock of an earthquake, and many of the houses in the city fell down, of which number the merchant's was one, so that he was indebted for his life to the singular forebodings of the cats.

Going to law is the art of cutting one's throat with a pen.

**INQUIRIES.**

I should feel obliged to some of your readers to send me the proper process of dying silk a good pink. I have been at a great expense and trouble with experiments to no purpose. Some time ago I asked my own brother to inform me of the process, but he refused; judge then how much I shall feel obliged to any of your enlightened correspondents who will communicate the secret to

Your humble servant, M. C.

If a thin deal stops the opening on the top of an exhausted glass receiver, and mercury be poured on it, it will be forced through, and will fall into the receiver in a fine shower; and if the experiment be made in the dark the shower will appear luminous.—Now, how does mercury in this instance happen to give out light? If a bright metal is found to be made luminous by being agitated in vacuo, it will be important, as it will give us reason to suppose the heavenly bodies emit theirs on the same principle.

Yours, respectfully, W. H.

**QUERIES.**

What composition is there that will make an accurate mould of a medal, &c., capable of sustaining the heat of fused lead, and of casting several copies from it without being destroyed?

I should feel obliged to any of your correspondents, if they can inform me of a method to gild the covers of books without the danger of the oil spreading, so as neither to dull the gilding, nor injure the colour of the leather.

Yours, respectfully, G. E. N.

What is the best and quickest method of making solid phosphorus?

I should be much obliged to any correspondent who would inform me how to make a parabolia and a cycloid, by a simple (mechanical) process; I mean not by the making the radius Vector equal to the distance from the directrix at each point, and by rolling a circle along a plane.

Your humble servant, F. M.

**METEOROLOGICAL TABLE.**

	Thermometer 8 in the morn	Thermometer noon	Thermometer 10 at night	Remarks
Jan. 7—Saturday	36°	44°	40°	cloudy rain
8—unday	42	51	46	rain fog
9—Monday	44	51	46	fog
10—Tuesday	54	58	45	clear
11—Wedns'y	42	47	39	rain fog
12—Thursday	40	46	36	clear
13—Friday	34	46	41	clear

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